REMARKS

Claims 74-78, 81, 83-87, and 90 are pending in the application as of entry of this amendment. Claims 74 and 85 are amended to recite additional features of the first and second switch configurations as supported by paragraphs [0089]-[0090] of the specification and Figure 7. Claim 90 is new and is supported by the specification at least in paragraphs [208] and [209] and Figure 7, among others. No new matter has been added by way of amendment.

Rejections of the Claims Under 35 U.S.C. §102 and/or §103

The Examiner rejected claims 74-79, 81, 85-89 under 35 U.S.C. §103(a) as obvious over Murata et al. (U.S. 5,423,915) in view of Patrick (U.S. 5,474,648) and Stramke (U.S. 4,645,981). The Examiner also rejected claims 83 and 84 under 35 § U.S.C. 103(a) as being unpatentable over Murata et al. (U.S. 5,423,915), Patrick (U.S. 5,474,648), and Stramke (U.S. 4,645,981) in view of Hoke (U.S. 5,077,875). Claims 75-78, 81, and 83-84 depend from claim 74, and claims 87-89 depend from claim 85.

Independent claims 74 and 85 are amended to recite a plasma processing apparatus comprising a plasma processing chamber having a plasma excitation electrode for exciting a plasma. The apparatus includes a measuring terminal for measuring a resonant frequency of the plasma processing chamber in the vicinity of an end of the radio frequency feeder, and a switch positioned between the radio frequency feeder and the measuring terminal. *The switch has a first configuration comprising a connection between the end of the radio frequency feeder and the output end of the matching circuit, where the end of the radio frequency feeder is separated from the measuring terminal, and a second configuration comprising a connection between the end of the radio frequency feeder and the measuring terminal, where the end of the radio frequency feeder is separated from the matching circuit.* The first configuration corresponds to a plasma excitation mode of

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the chamber, and the second configuration corresponds to a measuring mode of the chamber.

Claim 74 further recites that the plasma processing chamber is configured such that three times a first series resonant frequency f_0 of the plasma processing chamber is larger than a power frequency f_e of the radio frequency voltage, and claim 85 further recites that at least one of the shape of the radio frequency feeder, an overlapping area of the plasma excitation electrode and a chamber wall, a thickness of insulation material between the plasma excitation electrode and the chamber wall, and a capacitance between a susceptor electrode and the chamber wall is adjusted such that three times the first series resonant frequency f_0 is larger than a power frequency f_e supplied from the radio frequency generator.

The claims include structural features that are not shown in the cited art. Murata discloses a "plasma CVD apparatus" and Patrick discloses the configuration of an "RF parameter sensor" connected to the "plasma chamber" for measuring "RF parameters" during plasma processing. Furthermore, Stramke discloses a "switch" connected to an "apparatus for the surface treatment by glow discharge," which is controlled by a "timed pulse generator" and which switches a path to an ammeter. In contrast, Applicants' claimed switch is provided at a position at which a switching operation cannot be performed during plasma processing, and if a switching state is changed during plasma processing, plasma excitation is stopped. In the prior art cited by the Examiner, there is no need to provide a switch at this position. Either alone or in combination, the references cited by the Examiner do not disclose or suggest such an apparatus structure. Nor does the cited art teach or suggest a plasma processing chamber configured to provide the claimed relationship between the first series resonant frequency f_0 and the power frequency f_e, as the Examiner has acknowledged in previous Office actions.

For at least these reasons, a *prima facie* case of obviousness cannot be established with respect to claim 74 or claim 85, or any claims depending therefrom, based on the cited references. The Examiner is therefore respectfully requested to

withdraw the rejections of the claims under 35 U.S.C. §103 over Murata, Patrick, Stramke and Hoke.

Patentability of New Claim 90

Applicants submit that new claim 90 is patentable over the prior art of record in this application. The independent claim recites a plasma processing apparatus comprising, among other features, a plasma processing chamber comprising: at least one chamber wall and a first series resonant frequency f_0; a plasma excitation electrode for exciting a plasma and including a projection at a lower side thereof; a shower plate having a number of holes and being disposed under the plasma excitation electrode and in contact with the projection; and an insulation material between the plasma excitation electrode and the chamber wall. A thickness of the insulation material between the plasma excitation electrode and the chamber wall is sufficient to provide a vertical spacing between the shower plate and an inwardly protruding portion of the chamber wall, the thickness being such that three times the first series resonant frequency f_0 is larger than a power frequency f_e supplied from the radio frequency generator.

Since new claim 90 includes structural features that are not disclosed in or suggested by the references cited by the Examiner, either alone or in combination, Applicants submit that the claim is patentable over the cited art of record in this application.

Summary

Applicants respectfully submit that claims 74-78, 81, 83-87, and 90 are in condition for allowance. The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite allowance of the claims.

Respectfully submitted,

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